F I G. 1

100

F I G. 2

		○	32	8
2	16	32	16	4
1	4	8	2	1

FIG. 3

FIG. 4

ISO 400

FIG. 5

FIG. 6

FIG. 7

ISO 400

FIG. 8

ISO 400

F I G. 9

100

INPUT 101 → PROCESS a 201 → THRESHOLDING 103 → OUTPUT 105

PROCESS b 203

INVERSION 113

THRESHOLD 107

CORRECTED THRESHOLD VALUE 111

109

115

*β 117

CORRECTION VALUE MEMORY 119

F I G. 1 0

WHEN a = 2 AND b = 1,
COMPARISON WILL
BE BETWEEN
2 × (INPUT - 0.5)
AND THRESHOLD
VALUE - 0.5

INPUT   THRESHOLD VALUE

F I G. 1 1

WHEN a = 0.5 AND b = 1,
COMPARISON WILL
BE BETWEEN
0.5 × (INPUT - 0.5)
AND THRESHOLD
VALUE - 0.5

INPUT   THRESHOLD VALUE

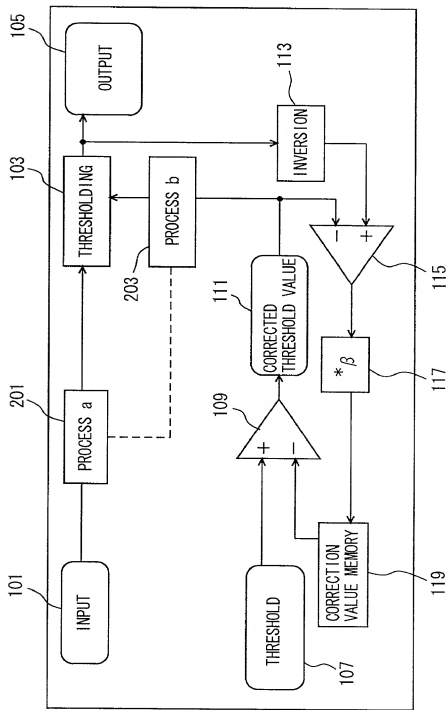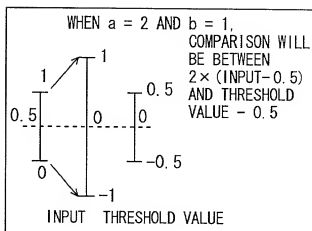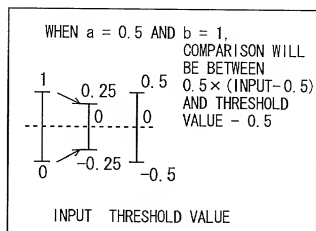## F I G. 1 2

EXAMPLES OF RELATION BETWEEN THE RATIO OF SET COEFFICIENTS
AND DEGREE OF EDGE ENHANCEMENT

DEGREE OF EDGE ENHANCEMENT	RELATION BETWEEN COEFFICIENTS a AND b
STRONGER	$a > b$
↑	
COMPARABLE TO COMMON THRESHOLD VALUE DIFFUSION	$a = b$
↓	
WEAKER	$a < b$

F I G. 1 3

TABLE OF CONDITIONS FOR COEFFICIENT SETTING

	COEFFICIENT a	COEFFICIENT b	a／b	β
EXAMPLE 1	0.1	1	0.1	0.08
EXAMPLE 2	1	1	1	0.5
EXAMPLE 3	2	1	2	0.68

F I G. 1 7

	COEFFICIENT a	COEFFICIENT b	a／b
EXAMPLE 1'	1	10	0.1
EXAMPLE 2'	1	1	1
EXAMPLE 3'	1	0.5	2

FIG. 14

FIG. 15

ISO 400
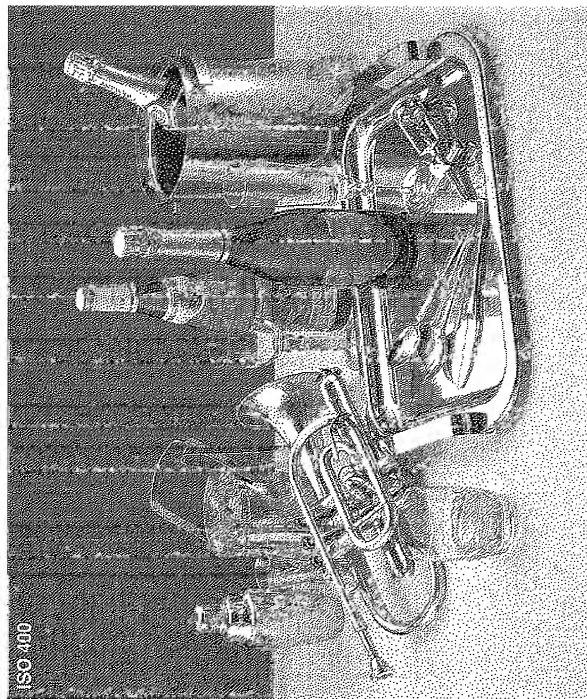
FIG. 16

FIG. 18

	COEFFICIENT a	COEFFICIENT b	a／b
EXAMPLE 1″	0.5	5	0.1
EXAMPLE 2″	2	2	1
EXAMPLE 3″	4	2	2

FIG. 19

WHEN a = 2, b = 1

INPUT   THRESHOLD VALUE

F I G. 2 0

WHEN a = 3, b = 1

INPUT   THRESHOLD VALUE

F I G. 2 1

WHEN a = 0.5, b = 1

INPUT   THRESHOLD VALUE

F I G. 2 2

100

F I G. 2 3

INPUT — 101

THRESHOLDING — 103

OUTPUT — 105

THRESHOLD VALUE Th(x) — 107

Modified Th(x) — 111

INVERSION — 113

COEFFICIENT a — 303

COEFFICIENT β — 117

109

115

301

305

F I G. 2 4

F I G. 2 5

F I G. 2 6

INPUT — 101

THRESHOLD VALUE
Th(x) — 107

THRESHOLDING — 103

OUTPUT — 105

Modified Th(x) — 111

109

INVERSION — 335

331

COEFFICIENT a — 303

333

305
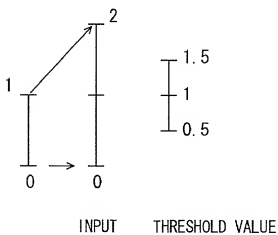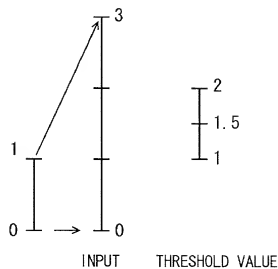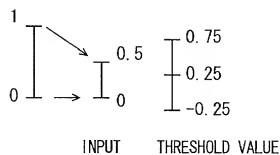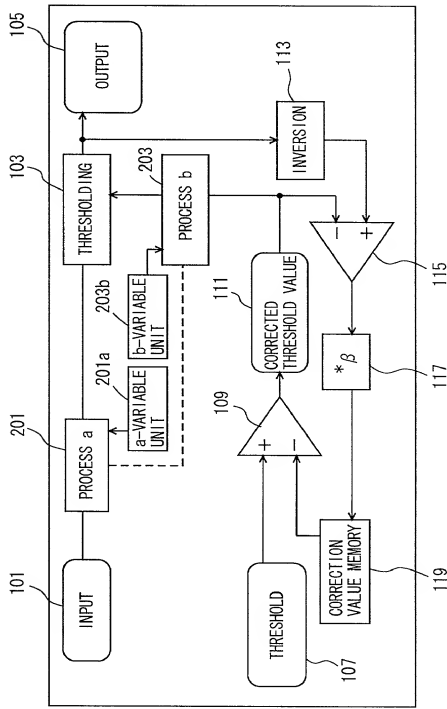
* COEFFICIENT β — 117

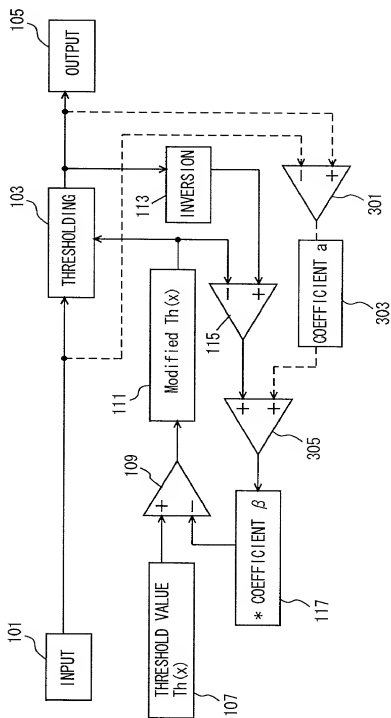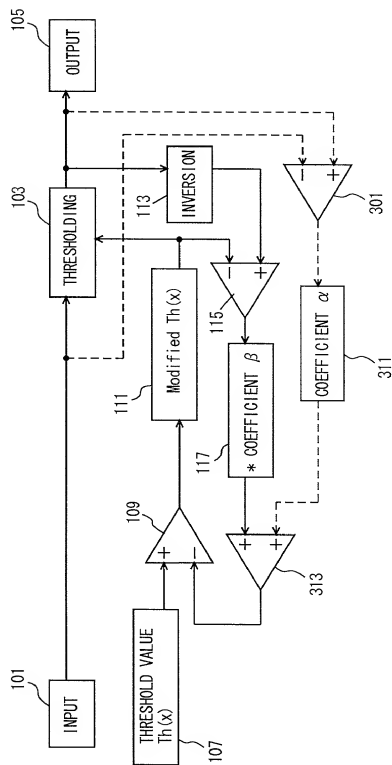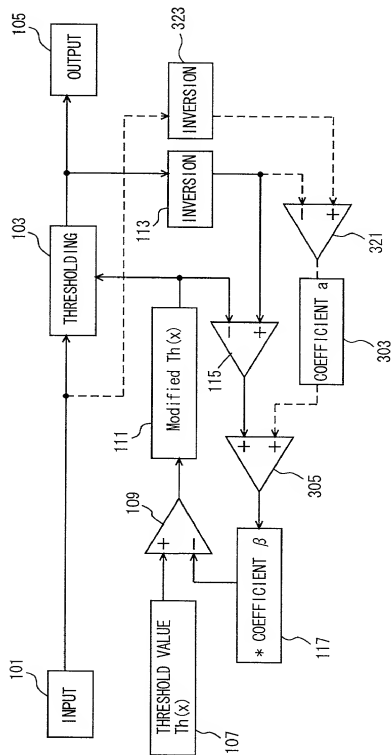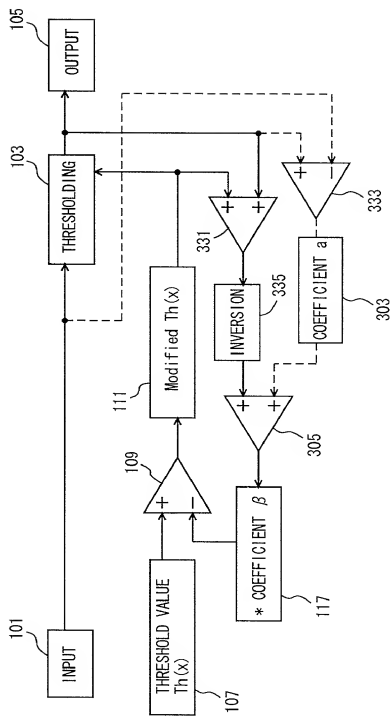# F I G. 2 7

EXAMPLES OF RELATION BETWEEN THE VALUE OF SET COEFFICIENTS
AND DEGREE OF EDGE ENHANCEMENT

DEGREE OF EDGE ENHANCEMENT	COEFFICIENTS a
STRONGER	$a > 0$
↑	
COMPARABLE TO COMMON THRESHOLD VALUE DIFFUSION	$a = 0$
↓	
WEAKER	$a < 0$

F I G. 2 8

TABLE OF SET COEFFICIENT VALUES

	COEFFICIENT a	
RESULT 1	0. 5	STRONG EDGE ENHANCEMENT
RESULT 2	0. 2	↑
RESULT 3	0	STANDARD THRESHOLD VALUE DIFFUSION
RESULT 4	−1	↓
RESULT 5	−5	WEAK EDGE ENHANCEMENT
ERROR DIFFUSION	—	STANDARD ERROR VALUE DIFFUSION

FIG. 29
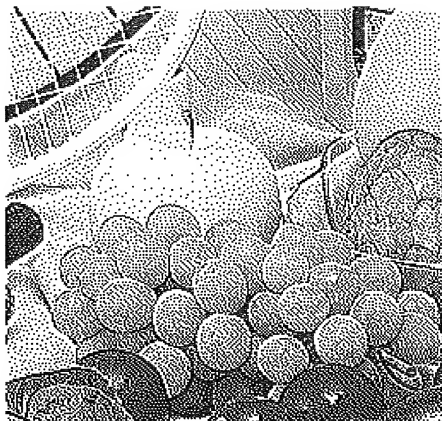
RESULT 1

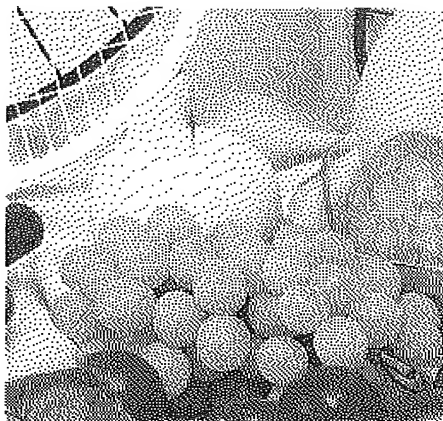FIG. 30

RESULT 2

FIG. 31

RESULT 3

FIG. 32
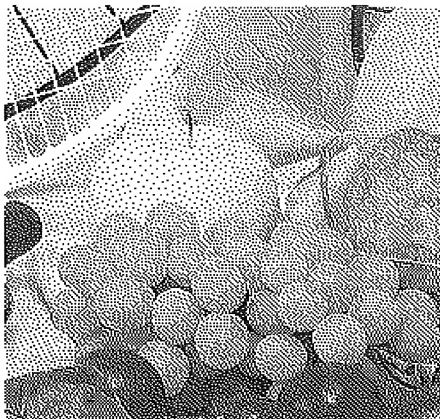
RESULT 4

FIG. 33

RESULT 5

FIG. 34

ERROR DIFFUSION

F I G. 3 5

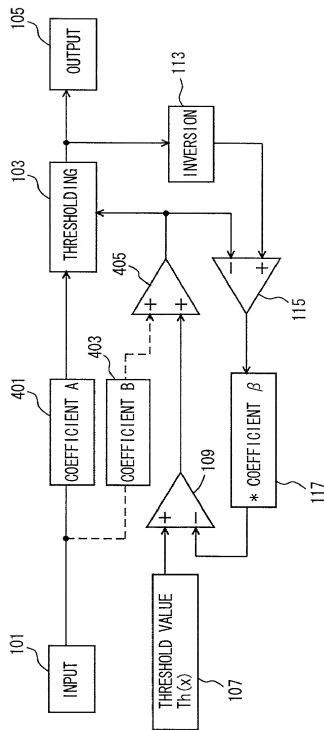
INPUT — 101

THRESHOLD VALUE Th(x) — 107

COEFFICIENT A — 401

COEFFICIENT B — 403

109

405

COEFFICIENT β — 117

115

THRESHOLDING — 103

INVERSION — 113

OUTPUT — 105

FIG. 36
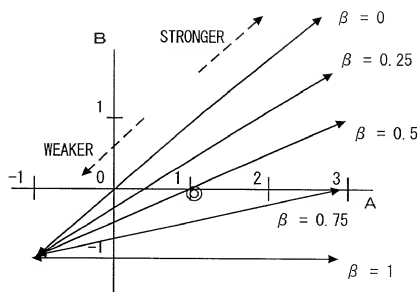
F I G. 3 7

β = 0.25

	WEAK				STRONG
A	-1	0	1	2	3
B	-1	-0.25	0.5	1.25	2

β = 0.5 (STANDARD THRESHOLD VALUE DIFFUSION)

	WEAK		STD		STRONG
A	-1	0	1	2	3
B	-1	-0.5	0	0.5	1

β = 0.75

	WEAK		STRONG	STRONG	STRONG
A	-1	0	-0.5	-0.25	0
B	-1	-0.75			

F I G. 3 8

TABLE OF SET COEFFICIENT VALUES (IN RESULTS 1 TO 5, $\beta = 0.5$)

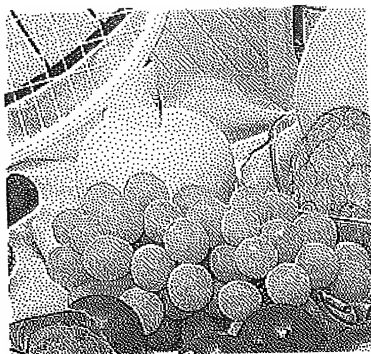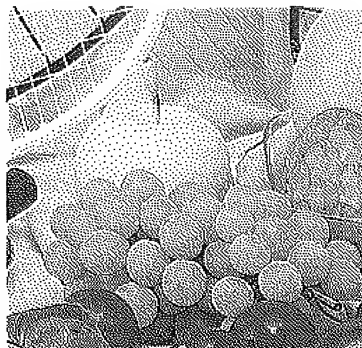|	COEFFICIENT A	COEFFICIENT B	
RESULT 1	3	1	STRONG EDGE ENHANCEMENT
RESULT 2	2	0.5	↑
RESULT 3	1	0	STANDARD THRESHOLD VALUE DIFFUSION
RESULT 4	0	-0.5	↓
RESULT 5	-1	-1	WEAK EDGE ENHANCEMENT
ERROR DIFFUSION	—	—	STANDARD ERROR VALUE DIFFUSION

FIG. 39
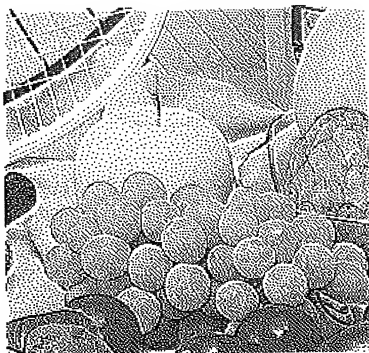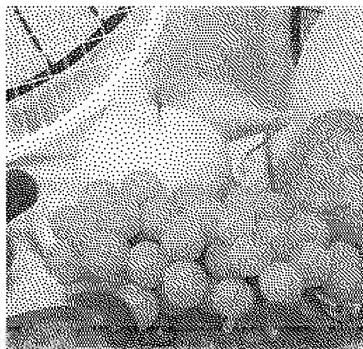

RESULT 1

FIG. 40

RESULT 2

FIG. 41

RESULT 3

FIG. 42

RESULT 4

FIG. 43

RESULT 5

F I G. 4 4

	COEFFICIENT A	COEFFICIENT B	COEFFICIENT β	
RESULT 6	3	2	0.25	STRONG EDGE ENHANCEMENT
RESULT 7	-1	-1	0.25	WEAK
RESULT 8	3	0	0.75	STRONG EDGE ENHANCEMENT
RESULT 9	-1	-1	0.75	WEAK

FIG. 45

RESULT 6

FIG. 46

RESULT 7

FIG. 47
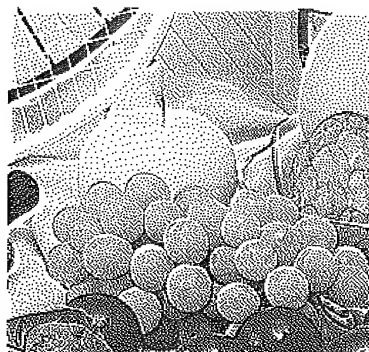
RESULT 8

FIG. 48

RESULT 9

F I G. 4 9 PRIOR ART